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REMARKS

Objections to the specification

The specification has been objected to because various serial numbers and dates in the cross-reference to related applications section at the beginning of the patent application were not filled in. Applicant has amended the application so that these serial numbers and dates are properly filled in, and requests that the objections be withdrawn.

Claim rejections under 35 USC 102

Claims 1-22 have been rejected under 35 USC 102(b) as being clearly anticipated by Ebrahim (5,905,998). Applicant submits that Ebrahim does not anticipate the invention of claims 1-22. In particular, Applicant believes that fundamental confusion has occurred as to the subject matter of the invention of claims 1-22, as compared to the subject matter of Ebrahim and what Ebrahim teaches and discloses. Applicant attempts to clear up this confusion by providing a short education on what the invention relates to, and what Ebrahim relates to. Applicant strongly encourages the Examiner to contact Applicant's Attorney, listed at the end of this response, if he remains unsure as to the difference between towards what the invention of the present patent application is directed, and towards what Ebrahim is directed – Applicant's Attorney is willing to provide the Examiner with further technical background and information as to the differences between the subject matter areas of the present invention and Ebrahim. Ebrahim simply just does not disclose anything that relates to what claims 1-22 claim; Applicant cannot overemphasize this point strongly enough.

The claims are directed to binding building blocks of a platform to a partition, particularly in a masterless manner. That is, the subject invention relates to partitioning building blocks to different partitions. Most generally, the invention relates to partitioning. Applicant believes that

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the term "building block" may have fostered some confusion on the Examiner's part. As indicated in the patent application as filed,

[t]he term building block is used herein in a general manner, and encompasses a separable grouping of processor(s), other hardware, such as memory, and software that can communicate with other building blocks. Building blocks can themselves be grouped together into partitions. A single partition runs a single instance of an operating system. A partition can include one or more building blocks. A system, or a platform, is the whole of all the partitions of all the building blocks. Thus, the building blocks of a platform may be partitioned into a number of partitions of the platform, and so on.

(Paragraph 21) The term building block as used in the patent application and as used in the claims may be considered at some level to correspond to what others within the art call nodes, or computing nodes, or computing units, or processors, and so on. The invention is directed to how to bind these building blocks into partitions at startup. That is, the invention is directed to how to partition the building blocks into different partitions, which usually occurs at startup.

By comparison, Ebrahim has nothing to do with partitioning, at all. Rather, Ebrahim is directed to cache coherence. (Abstract) As indicated in Ebrahim, maintaining cache coherence "means, at a minimum, that whenever data is written into a specified location to shared address space by one processor, the caches for any other processors which store data for the same address location are either invalidated, or updated with the new data." (Col. 1, ll. 19-24) That is, cache coherence relates to how cached data among different building blocks is maintained so that it remains consistent over the building blocks. For example, if two building blocks are caching the same memory location, and one of the building blocks changes the contents of the memory location, then the other building block either marks its cached copy of the memory location as being invalidated, or updates the cached copy with the new contents of the memory location.

Both the present invention and Ebrahim have to do with multiple-processor, or multiple-building block, systems; however, the substantial difference is that the present invention relates to how you go about organizing these building blocks into separate partitions, with each partition running a different instance of an operating system. By comparison, Ebrahim relates to, once

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such building blocks have been separated into partitions, how you go about maintaining cache coherence of the memory locations that the different building blocks are caching. Partitioning, as in the present invention, usually occurs once, at startup of the building blocks. Maintaining cache coherence, as in Ebrahim, conversely is an ongoing process, and occurs throughout run-time of the building blocks, as the building blocks cache memory.

Applicant notes that Ebrahim makes not a single reference to a partition, partitions, or partitioning. Such lack of recitation of the key concept of the present invention buttresses Applicant's point that Ebrahim is in a wholly different art area than the present invention. The present invention relates to partitioning, while Ebrahim simply does not.

Applicant believes that some of the confusion may have spawned from Ebrahim's use of the term "data block," whereas the claims of the present invention utilize the term "building block." The term data block appears to be used in Ebrahim as synonymous with the contents of a memory location. For instance, the term line in Ebrahim is defined as "the unit of memory in a cache memory used to store a single data block." (Col. 4, ll. 26-27) By comparison, as has been described, the term building block as used in the present invention relates to a grouping of one or more processors, and optionally related hardware and/or software. Thus, in the context of Ebrahim, the closest thing to a building block in Ebrahim is a processor.

In reviewing the Office Action, Applicant notes that the Examiner has relied primarily on the following parts of Ebrahim: FIG. 9, 10A-10E, and 14A-14D; and, columns 35-38, 40, 44, and 62. None of these figures or columns has anything to do with partitioning. FIG. 9 depicts the various buffers used for handling cache coherent writeback operations. (Col. 3, ll. 32-34) FIGs. 10A-10E show data packet formats for transaction requests, for use in cache coherence. (Col. 35-37) Applicant notes that cache coherent transaction requests are requests to read memory or write memory that has been cached. FIGs. 14A-14D show status information data structures, for use in cache coherence (Col. 46-48).

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Furthermore, columns 35-38, 40, and 44 of Ebrahim describe different types of cache coherent transactions, such as `ReadToOwn`, `ReadToDiscard`, and `Writeback`, as indicated in columns 35 and 36. Applicant notes that column 33, lines 54-64 precedes the descriptions of these types of cache coherent transactions, and indicates

Cache Coherent Transactions

Cache coherent transactions are transactions issued to access cacheable main memory address space.

The following are detailed explanations of each of the defined cache coherent transactions.

(Emphasis added) These transactions do not have anything to do with partitioning, as to which the subject invention is related. Finally, column 62 has to do with active transaction management, which also has nothing to do with partitioning.

Because Ebrahim has essentially nothing to do with the subject invention of claims 1-22, it obviously cannot anticipate any of these claims. For instance, claim 1 relates to “a method for binding a building block of a platform to a partition in a masterless manner.” However, Ebrahim does not disclose partitioning, or binding, building blocks, to various partitions. Claim 1 in its body recites various partition identifiers. However, Ebrahim recites no such partition identifiers, and cannot, as it simply does not relate to partitioning. Claims 2-13 depend ultimately from claim 1. Claim 14 recites a system in which building blocks have partition identifiers to which they relate, and in which partitions are identified by these partition identifiers. However, again, Ebrahim discloses no partitions, recites no partition identifiers, and has nothing to do with partitioning. Claims 15-18 depend ultimately from claim 14. Claim 19 recites an article of manufacture in which a partition is joined that is indicated by a partition identifier. Again, however, Ebrahim discloses no partitions, recites no partition identifiers, and has nothing to do with partitioning. Claims 20-22 depend ultimately from claim 19. Because Ebrahim has absolutely nothing to do with partitioning of building blocks among partitions – its entire

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disclosure relating instead to maintaining cache coherence, a very different problem – Ebrahim cannot remotely anticipate claims 1-22.

Conclusion

Applicant concludes by indicating that the prior art reference relied upon by the Examiner in rejecting the claims, Ebrahim, has nothing to do with the subject invention of the pending claims. In particular, Ebrahim relates completely to maintaining cache coherence, whereas the invention relates to partitioning. Partitioning of resources, like building blocks such as processors, occurs usually at startup of a platform or system. Once such resources have been partitioned, such as by using the claimed invention, cache coherence is then an ongoing process as memory locations are read from and written to by different building blocks. Cache coherence can thus be maintained by using Ebrahim's or another approach, but such cache coherence has nothing to do with partitioning.

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Applicant has made a diligent effort to place the pending claims in condition for allowance, and request that they so be allowed. However, should there remain unresolved issues that require adverse action, it is respectfully requested that the Examiner telephone Applicant's Attorney so that such issues may be resolved as expeditiously as possible. For these reasons, this application is now considered to be in condition for allowance and such action is earnestly solicited.

Respectfully Submitted,



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Date

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